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ON

PENETRATING WOUNDS OF THE BLADDER.

BY

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ETC., ETC.

DUBLIN:

PRINTED FOR THE AUTHOR

BY JOHN FALCONER, 53, UPPER SACKVILLE-STREET

1883.


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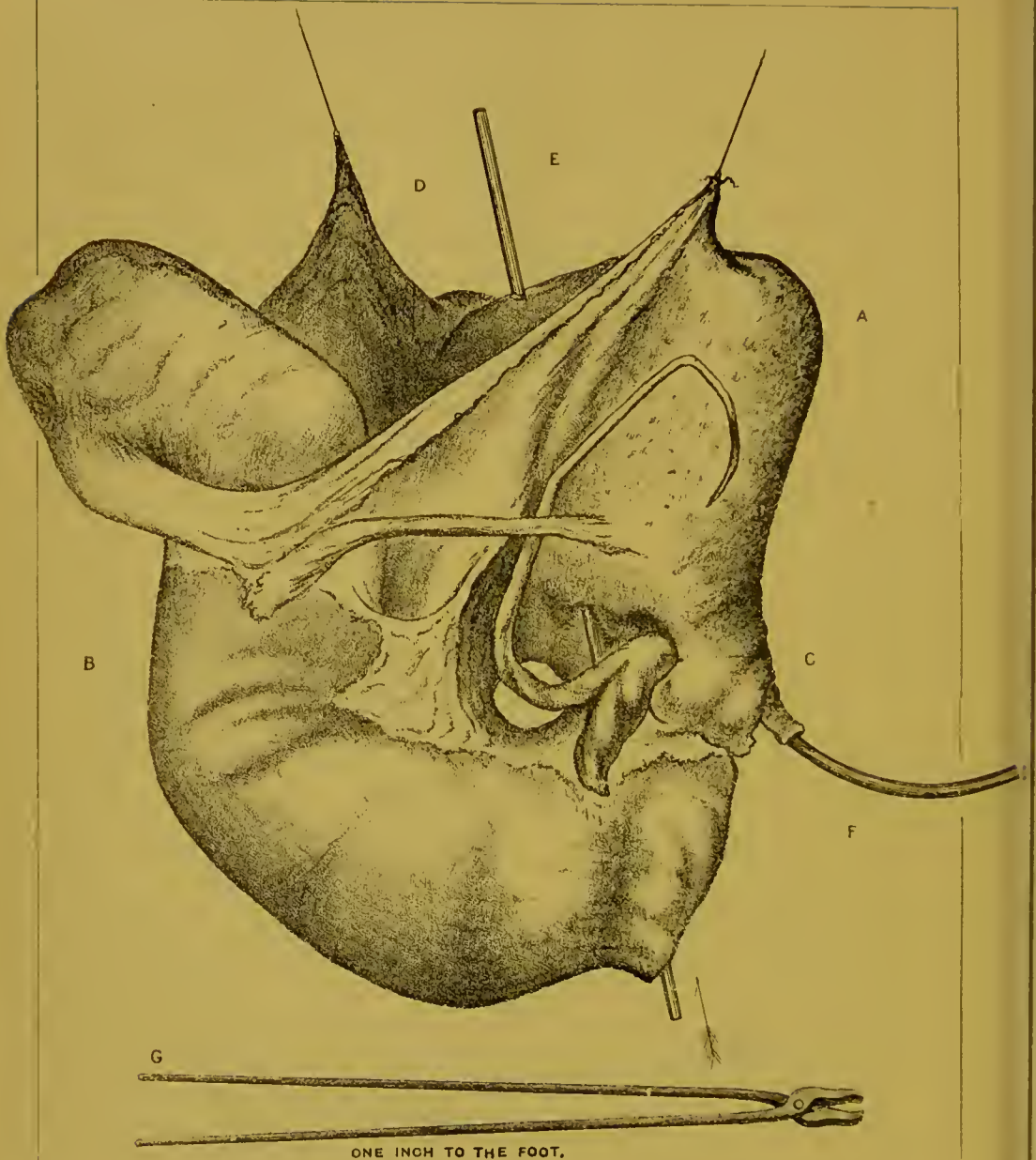

ONE INCH TO THE FOOT.

A. Bladder.
B. Rectum.
C. Vesicula Seminalis.
D. Recto Vesical Space.
E. Probe passing through Anus, entering Bladder at Trigone and emerging at Fundus
F. Catheter in Urethra.
G. Forger's tongs.

Drawn from Nature & Lith^{d} by Forster & Co^{y} Dublin

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This specimen was taken from a patient recently under my care in the Richmond Hospital. The case is deserving of record, inasmuch as it affords an instance of an injury to the urinary bladder which, if not unique, is certainly one of exceptional rarity among the traumatisms of that organ :—

W. B., aged sixteen, by occupation a labourer in an iron foundry establishment of this city, was admitted into the Richmond Surgical Hospital under my care on the 9th of last October. He was in a state of great collapse, and suffering intense pain, which he referred to the region of the bladder. On questioning him as to its cause, he stated that he had been playing with one of his companions, and the recreation was—vaulting over a pair of long forger's tongs. While so engaged, a failure attended one of his attempts to clear the instrument, and coming down on it, one of the long handles, by an unhappy coincidence, passed through the anus into the rectum. This accounts for there being externally no evidence of abrasion, contusion, or other injury. The patient fell, and the instrument, which had passed in a considerable distance, was immediately removed by his companion, who had him at once brought to hospital. His condition on his arrival there was such as to give rise to the gravest apprehension. His expression of face, pale and anxious, was indicative of acute suffering. He lay on his back, with his knees drawn up, and his hands pressed upon his abdomen. His voice was weak, his forehead bathed in a cold perspiration, and his pulse 116, so weak as to render it difficult to count. There was some slight hæmorrhagic oozing from the rectum, and after a tepid water injection,

carefully administered by my assistant, Mr. Torney, some clots of blood came away, but at no time was there hæmorrhage of any moment. The sufferings of the patient were so extreme and collapse was so great, it was not deemed desirable to make at the time any digital examination of the rectum. The urine, when first drawn off about an hour after the accident, was deeply tinged with blood, but this was not observed on any subsequent occasion when catheterisation was performed. The diagnosis made of a penetrating wound of the bladder was, in the main, verified by the autopsy. At first, as regards relief from pain, the treatment was quite successful, but on the second day the pain returned with much violence, and was referred to a much wider area. The abdomen became tense, swollen, and tympanitic; the pulse and temperature both rose—the former to 128, and the latter to 101° F. On the third day all the symptoms became much aggravated. I have seldom, if ever, seen a patient in such agony, and over which anodynes seemed to exercise such little effect. There was also at this juncture great vesical irritability, a desire to pass water occurring every fifteen or twenty minutes. On a catheter being introduced, only a few drops could be obtained at a time. The patient now became delirious, in which condition he remained until released from his suffering at 5 45 p.m. on October 12th, seventy-four hours after the occurrence of the accident.

The autopsy, which was made by our assistant-surgeon, Dr. Newton Dickenson, revealed the following conditions:—On opening the abdomen, some fluid to the amount of at least two ounces, and having the appearance of urine, escaped. The small intestines were greatly distended and very vascular. The vessels of the great omentum also were intensely injected, and a quantity of seropurulent fluid escaped from among the intestines. On raising the ascending colon, which was firmly bound down by adhesions, a gush of purulent fluid occurred in such quantity as to make one suspect that an abscess from the thorax had opened through the diaphragm. This was, however, found greatly arched upwards, especially on the left side as high as the nipple, but the fluid was confined to the peritoneal cavity. The bladder was found empty, and on passing the fingers over it, what appeared to be a small ulceration was perceptible. This, however, was found to be a perforation, and an elastic catheter was passed into it. On introducing a finger into the rectum, the catheter could easily be felt. By gentle manipulation it was found that the catheter entered the

rectum, and could be drawn out at the anus, thus establishing the existence of a double perforation of the bladder—one making a communication with the rectum, and the other opening into the peritoneal cavity. The rectum and bladder were then removed. The perforation in the rectum was apparently the size of a goose-quill, and situated on the anterior wall about 1½ inch from the anus. It passed upwards and forwards, pierced the neck of the bladder through the trigone, and perforated the viscus again at its fundus a little to the left of the median line. There were well-marked signs of extensive peritonitis.

Such, briefly, are the main features of this remarkable case, an exact analogue to which I have searched for in vain among the records of vesical injuries. I have been able to find only three cases that at all resembled it. Sir Prescott Hewitt[a] has published the particulars of a case of a *single* perforating wound of the bladder through the rectum. The patient fell upon the broken leg of a chair, which transfixed the rectum and urinary bladder. In this case there was urinary extravasation and death from peritonitis. Mr. Birkett[b] relates a somewhat similar case that occurred in the practice of Mr. Buée, of Slough. Recovery in this case took place. The patient, while playing with a companion, was pushed off a cart-load of faggots, and fell on a pointed stake, which had been driven into the earth. "This passed through the anus, transfixed the walls of the rectum, and tore the posterior region of the bladder through the wound. The man complained of intense pain. He was bled, and a full dose of opium administered." This patient ultimately recovered, and in two months was able to void urine by the urethra.

Mr. Bryant's case[c] was of a boy, aged twelve, who was a patient in Guy's Hospital in October, 1876. He was impaled on some area rails which he was mounting, when his foot slipped, and he became spiked in the buttock, and then fell backwards. The external wound was immediately internal to the tuber ischii, and two inches from the anus. There was a double rectal wound—

[a] Trans. of Path. Soc. of London. Vol. I., p. 152.
[b] Holmes' System of Surgery. Article, Injuries of the Pelvis.
[c] Med. Times and Gazette, May 25, 1878.

one in the posterior wall of the rectum, and the other just behind the prostate. It was thought likely that the recto-vesical peritoneal pouch had been opened. Mr. Bryant opened the bladder as for lateral lithotomy, to allow of the urine escaping, and the subsequent progress to recovery of the patient proceeded without interruption.

Another remarkable case that bears closely on the one at present under consideration was one recorded by Mr. Tufnell in Vol. IV., Part 2, of the "Proceedings of the Pathological Society of Dublin." The injury is described as a lacerated wound of the prostate gland, that organ having been separated by mechanical violence into two equal parts—one remaining attached to the bladder, and the other to the membranous portion of the urethra. The patient was lying on the top of a cart-load of hay, a pitchfork being beside him. The horse fell, and the man was thrown forward upon the ground, and on being raised up was found to be bleeding from the bowels. No external injury was observed. Catheterisation failed to draw off any water. The patient died of peritonitis on the fifth day after the accident. The result of the autopsy proved that one prong of the pitchfork "passing in front of the pubis, grazing the scrotum, and the other prong up the anus, splitting the prostate gland into two equal parts, detaching it from the urethra, and penetrating the tissues behind the pubis, in front of the abdominal peritoneum, into which space the urine from the bladder had passed until it could hold no more, and then making its way out per anum through the aperture in the rectum anterior to the bladder. These parts were in a state bordering upon slough. The intestines were matted together by lymph, and exhibited the usual signs of peritonitis."

M. Houel (Des Plaies et des Ruptures de la Vessie) states that cases have been recorded of penetrating wounds of the bladder from falling on sharp-pointed bodies, which penetrated the anus, anterior wall of rectum, and bladder, but gives no reference to any particular case of the injury, or to any surgeon who had recorded such. The cases he alluded to were probably those I have already mentioned. M. Jobert de Lamballe has recorded an

example of a wound of the bladder by a foreign body (a lead pencil) introduced into the vagina. It penetrated the bladder, and a fistula formed, which was afterwards successfully operated on by M. J. de Lamballe. This case is noted by M. Houel.

These are, so far as I can determine, the only recorded cases that are at all analogous to the one I have brought under your notice this evening. They differ in one important respect, in being mainly examples of single perforating wounds, whereas in the case now under consideration there was a perforation not only through the neck but also through the fundus of the bladder; and they also differ in the way in which the injuries were inflicted.

A problem of interest, of considerable scientific, as well as practical importance, is to determine whether the vesical wound or the extravasated urine plays the chief *rôle* in determining the peritoneal inflammation, which in the majority of these cases, as well as in those of vesical rupture, is the main factor in bringing about the usual fatal termination. Many recorded facts connected with the history of the latter lesion, and also of gunshot injuries, would seem to indicate that the contact of urine with the peritoneum is not, at all events, immediately followed by any necessarily disastrous consequences. For example, among others, I may allude to Mr. E. Mason's case of vesical rupture, noted by Dr. Stein, in which for weeks there was an absence of all symptoms of laceration, though the injury was intra-peritoneal, and the autopsy revealed Douglas' *cul-de-sac* filled with urine.

In Professor Bennett's case, also, a considerable time elapsed before any serious symptoms supervened. The particulars of other well-known cases—such as those recorded by Chaldecott, Thorpe, M'Dougall, Walters, and others—may also be adduced as bearing on this point. Recently much doubt has been thrown by Mr. Rivington on the estimate formed by the surgeons above mentioned of all these cases, with one exception, that of Mr. Walters of Pittsburgh. Mr. Rivington's views may be correct; but we should remember that the opinions he challenges were those of surgeons of considerable eminence, who had opportunity not only

of personal observation of the cases immediately after the accidents, but also of watching the progress of them subsequently—opportunities which Mr. Rivington did not possess.

Bearing on the subject of vesical wounds I may mention the fact—one noted first by Larrey and verified by the experience of recent wars, notably the American and Franco-Prussian—that intra-peritoneal gunshot wounds of the bladder are not so serious as is generally supposed. Agnew states that of 183 cases that occurred in the American war, 87 survived the immediate effects of the wound. In Sir William MacCormac's work, "Notes and Reminiscences of an Ambulance Surgeon," will be found records of examples of gunshot injuries of the bladder, many of which recovered without a bad symptom. The immunity in these cases is probably due, as pointed out so well by Marion Sims, to the efficient drainage that exists in such cases, which allows the escape of the urine before there is time for decomposition of urea to take place, it being, when this does occur, a septic agency of exceptional energy.

M. Vincent, of Lyons (Des Plaies penetrantes de la Vessie, *Revue de Chirurgie*, June, 1881), has shown from his experiments on dogs, that after eight and a half hours, subsequent to intra-peritoneal extravasation, the treatment of laparotomy and sponging out the blood and urine may be successful; but that when practised after a longer interval (twenty-five or twenty-five and a half hours after extravasation) the animals succumbed to urinary intoxication. In the three cases in which a similar operation has been performed on man—those, namely, of Walters, Willett, and C. Heath—we find that the successful case was the one in which the operation was done ten hours after the extravasation, whereas the unsuccessful ones were undertaken thirty hours and forty-two and a half hours after the accident. These facts tend in the direction of establishing the truth of the first of Menzel's conclusions in reference to urinary infiltration, based on a long series of experiments and clinical observations—viz., that "normal acid urine does not possess the property of exciting inflammatory or septic action, and never causes sloughing by its chemical constitution."[a]

[a] London Medical Record, May 15th, 1878.

The proposition might, perhaps, be stated in other words—namely, that extravasated healthy acid urine, previously to the occurrence of any septic alteration, may be considered innocuous. What length of time may be required before septic change occurs cannot, of course, be definitely stated. It must be an ever-varying phenomenon, depending, as it does, on so large a number and variety of circumstances.

The early recognition, therefore, of the fact of a vesical wound or rupture having taken place, and if possible distinguishing between its being extra or intra-peritoneal, are matters of the last importance. It is true the difficulties that surround making an accurate diagnosis in these cases are at times extreme, for many of the symptoms and signs of vesical wound or rupture, such as shock, hæmaturia, pain, gastric irritability, may with other alarming symptoms be present, and yet no penetration of the bladder may have occurred; and again, these lesions may be present and the symptoms of them not supervene until some time has elapsed from the receipt of the injury. As Dr. Stein says—"Though the symptoms may be for a time latent, once manifest they are rapidly progressive, and everything depends upon a timely and perhaps bold surgical interference." It may therefore, I think, be stated that in cases where either rupture or wound penetration is recognised, steps should be at once taken, unless there be some distinct contra-indication, to secure a free exit for the urine before the changes take place which, as a rule, lead to such disastrous consequences. In the case I have brought under your notice this evening neither laparotomy nor cystotomy could be contemplated, owing to the extreme condition of prostration the patient was in on his admission into hospital, from which condition, as I have stated, he never rallied.